GOVERNMENT OF INDIA
ENVIRONMENT, FORESTS AND CLIMATE CHANGE
LOK SABHA

STARRED QUESTION NO:22
ANSWERED ON:18.07.2017
Shrinking of Lakes/Glaciers
Pal Shri Jagdambika

Will the Minister of ENVIRONMENT, FORESTS AND CLIMATE CHANGE be pleased to state:

(a) whether the lakes, waterfalls and glaciers particularly in the Himalayan region are shrinking/receding/melting rapidly due to climate change and global warming;
(b) if so, the details thereof;
(c) whether the destruction/tragedy caused in Kedarnath also occurred/happened due to the melting of glaciers; and
(d) if so, the details thereof and the precautionary measures taken by the Government in this regard?

Answer

MINISTER FOR ENVIRONMENT, FOREST AND CLIMATE CHANGE
(DR. HARSH VARDHAN)

(a) to (d): A statement is laid on the Table of the House.

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Statement referred to in reply to Part (a) to (d) of Lok Sabha Starred Question No. 22 by SHRI JAGDAMBIKA PAL regarding 'Shrinking of Lakes/Glaciers

(a) and (b) As per information received from Department of Science and Technology, the processes of glacial recession are rather irregular in rate and in amount and time of occurrence. However, evidence for global warming being the causative factor for retreat of glaciers is inconclusive. According to information supplied by Department of Space, monitoring of glacier moraine-dammed lakes and glaciers has been carried out at Space Application Centre, Ahmedabad. The data of monitoring of glacial moraine-dammed lakes shows that surface area of these lakes has increased during period of monitoring. The data of monitoring of glaciers in Himalaya shows that pace of glacier retreat has slowed down after the year 2000. However, monitoring of waterfalls or lakes other than moraine-dammed type has not been carried out.

The glacial lakes and water bodies greater than 50 hectares in size in Himalayan region were monitored on monthly basis by National Remote Sensing Centre, Hyderabad during June to October of 2011 to 2016 years. This 6-year period is not sufficient to study the influence of climate change effects in shrinking of lakes in Himalayan region.
Changes in glaciers during 1962 - 2001 time frame are based on monitoring long term changes (~ 40 years) in 2630 glaciers. Glacier extents in 1962 were taken from Survey of India (SOI) topographical maps on 1:50,000 scales as reference and that of 2001 timeframe were taken from satellite data. This study showed a total loss of 13.4 % in area of 2630 glaciers of the Indian Himalaya.

During 2000/01/02 and 2010/2011-time frame, changes in 2018 glaciers were observed using Indian Remote Sensing Satellite data. The study has shown that 87% glaciers are stable (no change), 12% glaciers retreated and 1% glaciers have advanced. This gives a net loss of 20.94 sq. km in the total area of 10,250.68 sq. km for all the monitored glaciers mapped in the year 2000/01. Net change in glaciated area varies from one region to another.

The common glaciers in the above two studies are 1460.

(c) The combined effect of very heavy rainfall, heavy snowmelt and breaching of the Chaurabari lake in the upstream which could have resulted in a gushing outflow with large amount of debris caused destruction. The very heavy rainfall in the entire catchment further increased the magnitude of floods downstream.

(d) Government is implementing the National Action Plan on Climate Change (NAPCC) with a view to enhance the ecological sustainability of India's development path and address climate change in all regions of the country. NAPCC comprises, inter alia, of eight National Missions including National Mission for Sustaining the Himalayan Eco-system (NMSHE) which aims to strengthen the system for observing and monitoring the Himalayan glaciers. Major initiatives taken under NMSHE include creation of four Thematic Task Forces on Himalayan Agriculture, Traditional Knowledge systems, Forest Resources and Plant Diversity, and Fauna and Wildlife Habitats. It also includes networking of related institutions for focused research in different themes of Himalayan ecosystem. Programmes have been initiated for training in the field of glaciology, awareness programmes for community based organizations and officials related to the Indian Himalayan Region. Also, State Climate Change Centres have been set up in the seven Himalayan states, namely, Jammu and Kashmir, Himachal Pradesh, Manipur, Mizoram, Tripura, Sikkim and Meghalaya.

Further, under the National Plan for Conservation of Aquatic Ecosystems (NPCA) scheme, assistance is provided for conserving

lakes and wetlands, on cost sharing basis between the central and the state governments. The various activities covered under the scheme include interception, diversion and treatment of waste water, shoreline protection, lakefront development, de-silting, bioremediation, catchment area treatment, lake beautification, survey and demarcation, bio-fencing, fisheries development, weed control, biodiversity conservation, education and awareness, community participation, etc.

During the last three years from 2014-15 to 2016-17, an amount of Rs 20.24 crore under National Wetland Conservation Plan/NPCA and Rs 115.88 crore under National Lake Conservation Plan has been released to concerned state governments for conservation of wetlands and lakes respectively. During current financial year, an amount of Rs 60 crore has been allocated for NPCA schemes.

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